

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Applicant appreciates the Examiner's reminder regarding the abstract of the disclosure. Nevertheless, it is understood that the Examiners reminder is not an objection to the specification, and therefore Applicant chooses not to amend the abstract of the disclosure.

In response to the Examiner's acknowledgement of applicant's claim of foreign priority based on an application filed in Canada on December 22, 1999, a certified copy of the Canadian Patent Application 2,293,076 is submitted together with this amendment in order to comply with 35 U.S.C. 119(b).

The Examiner has rejected claims 1-11 under 35 U.S.C. 102(b) as being anticipated by Gliebe (US 5,478,199).

Applicant believes that the Examiner has confused the technology defined by the claimed invention, with the conventional technology of active noise attention disclosed by Gliebe. Before discussing the Examiner's rejection in particular, Applicant would like to review the fundamental difference in principle between the technology of Gliebe and the that of the claimed invention.

In the Gliebe's active noise attenuation technology, the anti-noise principle is to provide an anti-noise signal which has a frequency and amplitude **exactly equal** but 180 degrees out-of-phase with respect to the unwanted target noise sound wave, in order to substantially reduce the unwanted noise sound wave. This principle is clearly stated in column 6, lines 9-24 of Gliebe's patent.

Furthermore, this active noise attenuation technology is intended to substantially reduce the fundamental BPF (blade pass frequency), the fan first harmonics, and is specially for a plane-wave mode (spinning mode index $m=0$) in which the number of fan blades is equal to the number of vanes. Gliebe clearly

states this working condition in the summary of the invention (column 2, lines 10-20 and column 5, lines 14-30).

The fan and compressor noise attenuation technology defined in the claimed invention is fundamentally different from Gliebe's technology because the exciting sound wave generated for suppressing noise, requires a primary frequency generated differently from a frequency of the primary tone of the noise, rather than Gliebe's anti-noise signal having exactly equal frequency and amplitude but being 180 degrees out-of-phase with respect to the target noise wave. Therefore the exciting sound wave according to the present invention cannot directly offset the amplitude of the primary tone of the noise. Rather, the invention as claimed in claim 1 achieves reduction in the amplitude of the primary tone of the noise quite differently than is disclosed in Gliebe.

The Examiner has alleged that Gliebe teaches an exciting sound wave having a primary frequency generated differently from a frequency of the primary tone of the noise (see column 5, lines 15-46), however, the description in Gliebe's column 5, lines 15-46 is not relevant to the Examiner's allegation because Gliebe in those paragraphs merely states that his invention is only applicable to the vane-to-blade ratio exactly equal to 1.0 and that the fan first harmonic noise tone is attenuated by the anti-noise signal, and the higher harmonic noise tones are attenuated using conventional passive acoustic liners. Gliebe does not mention the frequency of the anti-noise signal. To the contrary, Gliebe states in column 6, lines 13-14, generating an anti-noise signal opposite in phase to the fundamental noise tone. People skilled in the art would know that the anti-noise signal defined by Gliebe must have a frequency equal to the fundamental noise tone. It would be nonsense to discuss signals opposite in phase if the signals have different frequencies.

Furthermore, because Gliebe teaches an active noise attenuation technology completely different from the technology defined in the claimed invention, he does not teach or even imply redistributing the sound energy of the noise from the frequency of the primary tone to a broad range of side bands, as defined in claim 1 of the instant invention. As a matter of fact, Gliebe's anti-noise signal which has equal frequency to the primary tone of the noise, cannot substantially excite the fluid medium to achieve the redistribution of the sound energy of the noise from the frequency of the primary tone to a broad range of the side bands. Therefore, the Examiner's rejection of claim 1 is traversed.

Claims 2-3 depend directly from claim 1 and should be allowable for the reasons set forth above. Furthermore, Gliebe does not teach the invention as defined in claim 3 of this application. The Examiner has misinterpreted outlet guide vanes (OGV) or stator vanes 30 of Gliebe's Fig. 1 as an exciting sound wave generator. In fact, the sound waves generated by the flow acting on the OGV 30 are not the exciting sound waves but are part of sound waves of noise to be attenuated, as clearly stated by Gliebe in column 3, lines 28-35. From column 5, line 66 to column 6, line 2, Gliebe has defined the sound transmitters as "any conventional form such as electromagnetic sound drivers or speakers, or piezoelectric ceramic drivers, or fluidic drivers", none of which generates sound waves by a force of fluid flow acting on a mechanical device.

Claims 4 and 7 are independent system claims corresponding to the method claim 1. Therefore, for reasons similar to those set forth above, claims 4 and 7 are patentably distinguished from Gliebe, and the Examiner's rejection of claims 4 and 7 is traversed.


Claims 5-6 and claims 8-11 depend directly or indirectly from the respective independent claims 4 and 7, and therefore are allowable for the reason set forth above.

The Examiner is also asked to note the enclosed copy of a *Notice of Acceptance of Power of Attorney* dated March 15, 2004, which acknowledges acceptance of Ogilvy Renault (PWC) as agents/attorneys for the Applicant.

Applicant believes that this application is in condition for allowance for the reasons set forth above. Favourable reconsideration of this application is respectfully requested.

Please note that appropriate documents rescinding the previous agent of Record and appointing Ogilvy Renault (PWC) (Customer Number 32292) as the agents of record, were filed in the United States Patent Office, on March 5, 2004.

Respectfully submitted,
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